Journal of
Molecular and Cellular Cardiology

Editor-in-chief:

A. M. Katz

Associate Editors:

C. Caldarera; H. Cingolani;
N. Dhalla; M. Endo;
V. Ferrans; D. J. Hearse;
R. Jennings; H. Kammermeier;
W. Kübler; E. Lakatta;
G. Langer; H. Morgan;
B. Nadal-Ginard; W. Nayler;
P. Poole-Wilson;
H. Reuter; G. Rona;
C. Rüegg; J. Schaper;
A. Schwartz; N. Sperelakis;
B. Swynghedauw; G. Vassort;
A. Watanabe; K. Wildenthal;
A. Wollenberger; R. Zak

Volume 21, January to December 1989

Academic Press

Harcourt Brace Jovanovich, Publishers
London San Diego New York
Boston Sydney Tokyo Toronto

RC
681
.A1
J64

Copyright © 1989 Academic Press Ltd.

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, or other means without written permission from the publishers.

Printed in Great Britain by Taylor & Francis (Printers) Limited, Basingstoke, Hants.

Contents of Volume 21

Number 1, January 1989

Editorial 1

Original Articles

H. Satoh, J. Hasegawa and M. Vassalle On the Characteristics of the Inward Tail Current Induced by Calcium 5

M. J. Curtis and D. J. Hearse Ischaemia-induced and Reperfusion-induced Arrhythmias Differ in their Sensitivity to Potassium: Implications for Mechanisms of Initiation and Maintenance of Ventricular Fibrillation 21

C. Romanin and W. R. Kukovetz Tolerance to Nitroglycerin is Caused by Reduced Guanylate Cyclase Activation 41

R. J. Wiesner, A. Deussen, M. Borst, J. Schrader and M. K. Grieshaber Glutamate Degradation in the Ischemic Dog Heart: Contribution to Anaerobic Energy Production 49

G. M. Bahr, A. M. Yousof, H. Majeed, L. Chedid and K. Behbehani Antibodies to a Streptococcal Cell Wall Adjuvant Structure Persist in Patients with Chronic Rheumatic Heart Disease 61

R. Zucchi, R. Poddighe, U. Limbruno. M. Mariani, S. Ronca-Testoni and G. Ronca Protection of Isolated Rat Heart from Oxidative Stress by Exogenous Creatine Phosphate 67

A. M. Dart and R. A. Riemersma Effects of Acidosis on Anoxic and Exocytotic Noradrenaline Release from the Heart 75

M. A. Sabry and G. K. Dhoot Identification of and Changes in the Expression of Troponin T Isoforms in Developing Avian and Mammalian Heart 85

V. Cappelli, R. Moggio, E. Monti, L. Paracchini, F. Piccinini and C. Reggiani Reduction of Myofibrillar ATPase Activity and Isomyosin Shift in Delayed Doxorubicin Cardiotoxicity 93

M. Eghbali, O. O. Blumenfeld, S. Seifter, P. M. Buttrick, L. A. Leinwand, T. F. Robinson, M. A. Zern and M. A. Giambrone Localization of Types I, III and IV Collagen mRNAs in Rat Heart Cells by *in situ* Hybridization 103

Letter to the Editor

Heart Energetics: A Framework for Ion Flux Analysis 115

ISHR Calendar 119

Meetings Calendar 120

Announcements 121

Number 2, February 1989

Original Articles

S. Virágh, E. Szabó and C. E. Challice Formation of the Primitive Myo- and Endocardial Tubes in the Chicken Embryo 123

O. Ohno, H. Tsuboi, K. Ogawa, K. Okumura, T. Ito, H. Hashimoto and T. Satake Effect of Reperfusion on the Cardiac Acetylcholine and Norepinephrine Contents in Rat Hearts 139

A. Lochner and M. de Villiers Phosphatidylcholine Biosynthesis in Myocardial Ischaemia 151

B. Felzen, R. Lotan and O. Binah Inter-species Variations in Myocardial Responsiveness to Cardiac Glycosides: Possible Relations to the Thyroid status 165

R. Spahr, S. L. Jacobson, B. Siegmund, P. Schwartz and H. M. Piper Substrate Oxidation by Adult Cardiomyocytes in Long-term Primary Culture 175

L. G. Herbette, Y. M. H. Vant Erve and D. G. Rhodes Interaction of 1,4 Dihydropyridine Calcium Channel Antagonists with Biological Membranes: Lipid Bilayer Partitioning Could Occur Before Binding to Receptors 187

S. Hori, H. Nakazawa, Y. Ohnishi, H. Yoshino, A. Murayama, Y. Nishikawa, Y. Nakamura, M. Horikawa, T. Hoshino and M. Bessho A Rapid Cross-sectioning and Freeze-clamping Device for the Beating Canine Heart 203

G. Kotsanas, C. L. Gibbs and I. R. Wendt Energy Metabolism in the Perfused Arrested Rabbit Heart 211

E. Oppenheimer, H. Meiri and Y. Ori The Specific Binding of [^{3}H]EO-122, a Radiolabeled Class I Antiarrhythmic Drug to Rat Heart Membranes 223

ISHR Calendar 231

Meetings Calendar 232

Announcements 233

Number 3, March 1989

Rapid Communication

G. Agnoletti, R. Ferrari, A. M. Slade, N. J. Severs and P. Harris Stretch-induced Centrifugal Movement of Atrial Specific Granules–a Preparatory Step in Atrial Natriuretic Peptide Secretion 235

Original Articles

H. Honjo, J. Toyama, I. Kodama, T. Sato, T. Watanabe and K. Yamada Fluctuations of Membrane Potential in Isolated Single Ventricular Myocytes of Guinea-pig Upon Resumption of Oxidative Phosphorylation 241

G. J. Bagby and C. B. Corll Comparison of Lipoprotein Lipase Activity in Heart Myocytes and Perfused Hearts 253

C. M. Grum, K. P. Gallagher, M. M. Kirsh and M. Shlafer Absence of Detectable Xanthine Oxidase in Human Myocardium 263

G. Richardt, W. Waas, R. Kranzhöfer, B. Cheng, M. J. Lohse and A. Schömig Interaction Between the Release of Adenosine and Noradrenaline During Sympathetic Stimulation: A Feed-back Mechanism in Rat Heart 269

S. Forsgren Neuropeptide Y-like Immunoreactivity in Relation to the Distribution of Sympathetic Nerve Fibers in the Heart Conduction System 279

J. Noireaud, C. M. Bright and D. Ellis Effects of Saponin on Contractile Force and Intracellular Ion Activities of Cardiac Tissues 291

F. Z. Meerson and I. Yu. Malyshev Adaptation to Stress Increases the Heart Resistance to Ischemic and Reperfusion Arrhythmias 299

E. M. Meyer, S. C. Donohue, V. Khadilkar and S. P. Baker Cholinergic Properties of Rat Atrial Subcellular Preparations 305

J. A. Hill, Jr., R. Coronado and H. C. Strauss Reconstitution of Ionic Channels from Human Heart 315

J. Segal Acute Effect of Thyroid Hormone on the Heart: An Extranuclear Increase in Sugar Uptake 323

M. Karmazyn and J. R. Neely Inhibition of Post-ischemic Ventricular Recovery by Low Concentrations of Prostacyclin in Isolated Working Rat Hearts: Dependancy on Concentration, Ischemia Duration, Calcium and Relationship to Myocardial Energy Metabolism 335

ISHR Calendar 347

Meetings Calendar 348

Announcements 349

Number 4, April 1989

P. B. Morris, M. Nixon Ellis and J. L. Swain Angiogenic Potency of Nucleotide Metabolites: Potential Role in Ischemia-induced Vascular Growth 351

A. M. Feldman, A. E. Cates, M. R. Bristow and C. Van Dop Altered Expression of α-subunits of G Proteins in Failing Human Hearts 359

S. Blank, V. Chen, N. Hamilton, T. A. Salerno and C. D. Ianuzzo Biochemical Characteristics of Mammalian Myocardia 367

K. M. Baker and J. A. Aceto Characterization of Avian Angiotensin II Cardiac Receptors: Coupling to Mechanical Activity and Phosphoinositide Metabolism 375

G. Vandeplassche, C. Hermans, F. Thoné and M. Borgers Mitochondrial Hydrogen Peroxide Generation by NADH-oxidase Activity Following Regional Myocardial Ischemia in the Dog 383

J. K. Michelson, P. J. Simpson and B. R. Lucchesi Antiplatelet Monoclonal $F(ab')_2$ Antibody Directed Against the Platelet GPIIb/IIIa Receptor Complex Prevents Coronary Artery Thrombosis in the Canine Heart 393

L. N. Bouman, J. J. Duivenvoorden, F. F. Bukauskas and H. J. Jongsma Anisotropy of Electrotonus in the Sinoatrial Node of the Rabbit Heart 407

S. B. Laster, L. C. Becker, G. Ambrosio and W. E. Jacobus Reduced Aerobic Metabolic Efficiency in Globally "Stunned" Myocardium 419

ISHR Calendar 427

Meetings Calendar 428

Announcements 429

Number 5, May 1989

Obituary 431

Rapid Communications

D. H. Kim, A. B. Landy III, Y. S. Lee and A. M. Katz Doxorubicin-induced Calcium Release from Cardiac Sarcoplasmic Reticulum Vesicles 433

A. F. Doubell The Effect of Calcium Antagonists on Atrial Natriuretic Peptide (ANP) Release from the Rat Heart During Rapid Cardiac Pacing 437

Originals Articles

T. Yamakawa, Y. Kadowaki, M. Garcia-Alves, M. Yokoyama, Y. Iwashita and K. Nishi Effects of Polyoxyethylene-modified Superoxide Dismutase on Reperfusion Induced Arrhythmias in Isolated Rat and Guinea-pig Hearts 441

R. A. Colvin, J. A. Oibo, R. A. Allen, L. Tyler and D. Leek Interaction of Amiodarone and Desethylamiodarone with the Cardiac Muscarinic Receptor *in vitro* 453

Y. Shakhov, J. Larrue, N. Perova, B. Dorian, D. Daret, I. Shcherbakova, H. Bricaud and R. Oganov Prostacyclin-mediated Effect of High Density Lipoproteins as Cellular Cholesterol Acceptors on Aortic Smooth Muscle Cells 461

R. G. Weiss, V. P. Chacko and G. Gerstenblith Fatty Acid Regulation of Glucose Metabolism in the Intact Beating Rat Heart Assessed by Carbon-13 NMR Spectroscopy: the Critical Role of Pyruvate Dehydrogenase 469

D. K. Racker The Demonstration of Intercellular Coupling Between Cells of the Canine Distal AV Bundle Using Lucifer Yellow-CH and Histological Sections 479

B. Rauch, R. A. Colvin and F. C. Messineo Inhibition of ^{3}H-Quinuclidinyl Benzylate Binding to Cardiac Muscarinic Receptor by Long Chain Fatty Acids can be Attenuated by Ligand Occupation of the Receptor 495

P. A. Kithas, M. Artman, W. J. Thompson and S. J. Strada Subcellular Distribution of High-affinity Type IV Cyclic AMP Phosphodiesterase Activities in Rabbit Ventricular Myocardium: Relations to Post-natal Maturation 507

Review Article

C. R. Jones, P. Molenaar and R. J. Summers New Views of Human Cardiac B-Adrenoceptors 519

ISHR Calendar 537

Announcements 538

Number 6, June 1989

Rapid Communication

M. Tarr and D. P. Valenzeno Modification of Cardiac Action Potential by Photosensitizer-generated Reactive Oxygen 539

Original Articles

L. Szekeres, Z. Szilvassy, E. Udvary and A. Vegh 7-oxo-PgI_2 Induced Late Appearing and Long-lasting Electrophysiological Changes in the Heart *in situ* of the Rabbit, Guinea-pig, Dog and Cat 545

A. P. Thomas, E. J. Sass, T. T. Tun-Kirchmann and E. Rubin Ethanol Inhibits Electrically-induced Calcium Transients in Isolated Rat Cardiac Myocytes 555

R.-K. Li, D. A. G. Mickle, R. D. Weisel, L. C. Tumiati, G. Jackowski, T.-W. Wu and W. G. Williams Effect of Oxygen Tension on the Anti-oxidant Enzyme Activities of Tetralogy of Fallot Ventricular Myocytes 567

A. A. Knowlton, C. S. Apstein, R. Saouf and P. Brecher Leakage of Heart Fatty Acid Binding Protein with Ischemia and Reperfusion in the Rat 577

S. A. Elgebaly, P. Masetti, M. Allam and F. Forouhar Cardiac Derived Neutrophil Chemotactic Factors; Preliminary Biochemical Characterization 585

N. Kondo Effects of Concanavalin A on Cardiotonic Responses to A23187 and Isoporenaline 595

S. Hirai, J. Hasegawa and H. Mashiba Positive Inotropic Effect of Somatostatin in Guinea-pig Ventricular Muscles 607

W. Zierhut and H.-G. Zimmer Differential Effects of Triiodothyronine on Rat Left and Right Ventricular Function and the Influence of Metroprolol 617

M. J. Curtis and D. J. Hearse Reperfusion-induced Arrhythmias are Critically Dependent upon Occluded Zone Size: Relevance to the Mechanism of Arrhythmogenesis 625

ISHR Calendar 639

Announcement 640

Number 7, July 1989

C. J. Beinlich, J. D. Robishaw and J. R. Neely Metabolism of Pantothenic Acid in Hearts of Diabetic Rats 641

A. R. Denniss, W. S. Colucci, P. D. Allen and J. D. Marsh Distribution and Function of Human Ventricular Beta Adrenergic Receptors in Congestive Heart Failure 651

J. T. A. Meij and J. M. J. Lamers Phorbolester Inhibits α_1-Adrenoceptor Mediated Phosphoinositide Breakdown in Cardiomyocytes 661

A.-I. K. El Amrani, Y. Lecarpentier, B. Riou and J. C. Pourny Lusitropic Effect and Modifications of Contraction-Relaxation Coupling Induced by α-Adrenergic Stimulation in Rat Left Ventricular Papillary Muscle 669

G. Aksnes, O. Ellingsen, D. L. Rutlen and A. Ilebekk Myocardial K^+ Repletion and Rise in Contractility after Brief Ischemic Periods in the Pig 681

T. Huizer, J. W. de Jong, J. A. Nelson, W. Czarnecki, P. W. Serruys J. J. R. M. Bonnier and R. Troquay Urate Production by Human Heart 691

H. Brasch, M. H. Schoenberg and M. Younes No Evidence for an Increased Lipid Peroxidation during Reoxygenation in Langendorff Hearts and Isolated Atria of Rats 697

M. Uehara, M. Taguchi, M. Asashima and C. J. Pfeiffer Developmental Physiology of Cardiac Contraction in the Japanese Newt *In vivo* and *In vitro* 709

B. Schoutsen, J. J. Blom, P. D. Verdouw and J. M. J. Lamers Calcium Transport and Phospholamban in Sarcoplasmic Reticulum of Ischemic Myocardium 719

C. Nordin, F. Siri and R. S. Aronson Electrophysiologic Characteristics of Single Myocytes Isolated from Hypertrophied Guinea-pig Hearts 729

ISHR Calendar 741

Announcement 742

Number 8, August 1989

U. R. Tipinis, A. L. Steiner, C. Skiera and M. K. Haddox Immunolocalization of Ornithine Decarboxylase in Rat Heart Atria 743

C. Munsch, J. F. Williams and F. L. Rosenfeldt The Impaired Tolerance of the Recently Infarcted Rat Heart to Cardioplegic Arrest: The protective Effect of Orotic Acid 751

R. J. Tomanek Sympathetic Nerves Modify Mitochondrial and Capillary Growth in Normotensive and Hypertensive Rats 755

P. M. Latipää Energy-linked Regulation of Mitochondrial Fatty Acid Oxidation in the Isolated Perfused Rat Heart 765

A. Deussen, H. G. E. Lloyd and J. Schrader Contribution of S-Adenosylhomocysteine to Cardiac Adenosine Formation 773

C. D. Wolleben, M. C. Sanguinetti and P. K. S. Siegl Influence of ATP-sensitive Potassium Channel Modulators on Ischemia-induced Fibrillation in Isolated Rat Hearts 783

K.-H. Konz, M. Haap, K. E. Hill, R. F. Burk and R. A. Walsh Diastolic Dysfunction of Perfused Rat Hearts Induced by Hydrogen Peroxide, Protective Effect of Selenium 789

H. Van Belle, F. Goossens and J. Wynants Biochemical and Functional Effects of Nucleoside Transport Inhibition in the Isolated Cat Heart 797

P. Grammas, M. O. Dereski, C. Diglio, F. Giacomelli and J. Wiener Autonomic Receptor Interactions in Isolated Cardiac Myocytes from Hypertensive Rats 807

J. L. Rouleau, C. Juneau, H. Stephens, H. Shenasa, W. W. Parmley and D. L. Brutsaert Mechanical Properties of Papillary Muscle in Cardiac Failure: Importance of Pathogenesis and of Ventricle of Origin 817

M. Hee-Cheong and D. L. Severson Metabolism of Dioctanoylglycerol by Isolated Cardiac Myocytes 829

ISHR Calendar 839

Announcement 840

Number 9, September 1989

J. A. Leipälä, T. E. S. Takala and I. E. Hassinen Transmural Distribution of Calcium Accumulation and Glucose Uptake in the Calcium Paradox in the Rat Left Ventricle 841

M. K. Aliev The Analysis of Extracellular Calcium Exchange in Perfused Myocardium Using Mathematical Modeling 849

S. Richard, D. Potreau, P. Charnet, G. Raymond and J. Nargeot Are Ba^{2+} and Sr^{2+} Ions Transported by the Na^{+}–Ca^{2+} Exchanger in Frog Atrial Cells? 865

A. G. Semb, K. Ytrehus, J. Vaage, R. Myklebust and O. D. Mjos Functional Impairment in Isolated Rat Hearts Induced by Activated Leukocytes: Protective Effect of Oxygen Free Radical Scavengers 877

G. N. Pierce, G. A. Langer, G. B. Wright and M. J. B. Kutryk Calcium is Rapidly Exchangeable in Cultured Vascular Smooth Muscle Cells from Rabbit Aorta 889

K. Schüttler and W. Boldt Ca-mediated Action Potentials in Ventricular Myocardium. Variation by Various Stimulation Pattern and by K-Channel Blockers 901

P. S. Coleman, M. S. Parmacek, M. Lesch and A. M. Samarel Protein Synthesis and Degradation During Regression of Thyroxine-induced Cardiac Hypertrophy 911

M. Seguchi and J. M. Jarmakani Effect of Respiratory Acidosis on Hypoxic Newborn Myocardium 927

M. Kaneko, S-L. Lee, C. M. Wolf and N. S. Dhalla Reduction of Calcium Channel Antagonist Binding Sites by Oxygen Free Radicals in Rat Heart 935

F. J. Clubb, Jr., D. G. Penney and S. P. Bishop Cardiomegaly in Neonatal Rats Exposed to 500 ppm Carbon Monoxide 945

ISHR Calendar 957

Number 10, October 1989

Rapid Communication

H. Kawaguchi, H. Sawa and H. Yasuda Effect of Atrial Natriuretic Factor on Angiotensin Converting Enzyme 959

Original Articles

D. Stone, V. Darley-Usmar, D. R. Smith and V. O'Leary Hypoxia-reoxygenation Induced Increase in Cellular Ca^{2+} in Myocytes and Perfused Hearts: the Role of Mitochondria **963**

T. Nakanishi, K. Kamata, K. Nojima, M. Seguchi and A. Takao Inotropic Effect of Phenylephrine and Myocardial Alpha-adrenergic Receptor in Newborn and Adult Animals **975**

C. Nyquist-Battie, R. T. Dowell and H. Fernandez Acetylcholinesterase Molecular Forms in Muscle and Non-muscle Cells of Rat Heart **987**

S. Bhatti, G. Zimmer and J. Bereiter-Hahn Enzyme Release from Chick Myocytes During Hypoxia and Reoxygenation: Dependence on pH **995**

Z. Q. Shi, A. J. Davison and G. F. Tibbits Effects on Active Oxygen Generated by DTT/Fe^{2+} on Cardiac Na^+/Ca^{2+} Exchange and Membrane Permeability to Ca^{2+} **1009**

J. C. Hervé, B. Bastide and J. Délèze Segmental Electrical Uncoupling and Conduction Blocks After Calcium Removal and Replacement in a Mammalian Auricle **1017**

G. Shin, M. Sugiyama, T. Shoji, A. Kagiyama, H. Sato and R. Ogura Detection of Mitochondrial Membrane Damages in Myocardial Ischemia with ESR Spin Labeling Technique **1029**

S. E. Warren, Y. Kihara, J. Pesaturo, J. K. Gwathmey, P. Phillips and J. P. Morgan Inotropic and Lusitropic Effects of MCI-153(6[4-(4-Pyridyl)Aminophenyl]-4,5-Dihydro-3(2H)-Pyridazinone) on Human Myocardium **1037**

G. Vescovo, S. M. Jones, S. E. Harding and P. A. Poole-Wilson Isoproterenol Sensitivity of Isolated Cardiac Myocytes from Rats with Monocrotaline-induced Right-sided Hypertrophy and Heart Failure **1047**

U. Limbruno, R. Zucchi, S. Ronca-Testoni, P. Galbani, G. Ronca and M. Mariani Sarcoplasmic Reticulum Function in the "Stunned" Myocardium **1063**

J. E. Hixson, R. D. Henkel, M. L. Britten, D. T. Vernier, R. A. deLemos, J. L. VandeBerg and R. A. Walsh α-Myosin Heavy Chain cDNA Structure and Gene Expression in Adult, Fetal, and Premature Baboon Myocardium **1073**

ISHR Calendar **1087**

Number 11, November 1989

J. Headrick, K. Clarke and R. J. Willis Adenosine Production and Energy Metabolism in Ischaemic and Metabolically Stimulated Rat Heart **1089**

P. B. Garlick, G. D. Mashiter, V. DiMarzo, J. R. Tippins, H. R. Morris and M. N. Maisey The Synthesis, Release and Action of Leukotrienes in the Isolated, Unstimulated, Buffer-perfused Rat Heart **1101**

D. R. Janero and B. Burghardt Oxidative Injury to Myocardial Membrane: Direct Modulation by Endogenous α-Tocopherol **1111**

J. Kalra, A. K. Chaudhary and K. Prasad Role of Oxygen Free Radicals and pH on the Release of Cardiac Lysosomal Enzymes **1125**

H. I. Oei, A. C. G. Van Ginneken, H. J. Jongsma and L. N. Bouman Mechanisms of Impulse Generation in Isolated Cells from the Rabbit Sinoatrial Node **1137**

B. Felzen, Y. Sweed and O. Binah Electrophysiological Effects of Thyroid Hormones in Guinea-pig Ventricular Muscle: Time Course and Relationships to Blood Levels **1151**

S. Neubauer and J. S. Ingwall Verapamil Attenuates ATP Depletion During Hypoxia: ^{31}P NMR Studies of the Isolated Rat Heart **1163**

H. Meno, J. M. Jarmakani and K. D. Philipson Developmental Changes of Sarcolemmal Na^+–H^+ Exchange **1179**

C. Shirato, T. Miura, H. Ooiwa, T. Toyofuku, W. H. Wilborn and J. M. Downey Tetrazolium Artifactually Indicates Superoxide Dismutase-induced Salvage in Reperfused Rabbit Heart 1187

J. H. Kuwata and G. A. Langer Rapid, Non-perfusion-limited Calcium Exchange in Cultured Neonatal Myocardial Cells 1195

J. H. Kirkels, C. J. A. van Echteld and T. J. C. Ruigrok Intracellular Magnesium During Myocardial Ischemia and Reperfusion: Possible Consequences for Postischemic Recovery 1209

ISHR News 1219

ISHR Meetings Calendar 1221

Abstracts for the Vth Annual Meeting of the ISHR (IGHR) i

Number 12, December 1989

Editorial Comment

A. M. Katz The Role of Neutrophil and Free Radicals in Ischemic Myocardial Injury: A Controversy 1223

Editorials

K. A. Reimer, C. E. Murry and V. J. Richard The Role of Neutrophils and Free Radicals in the Ischemic-reperfused Heart: Why the Confusion and Controversy? 1225

B. R. Lucchesi, S. W. Werns and J. C. Fantone The Role of the Neutrophil and Free Radicals in Ischemic Myocardial Injury 1241

Original Articles

K. Y. Bogdanov, S. I. Zakharov and L. V. Rosenshraukh Effects of Barium on Spontaneous Mechanical and Electrical Oscillations in Rat Papillary Muscle 1253

X-j, Pi and X. Chen Captopril and Ramiprilat Protect Against Free Radical Injury in Isolated Working Rat Hearts 1261

G. Aksnes, Ø. Ellingsen, D. L. Rutlen and A. Ilebekk Effects of Hemodynamic Variables on Myocardial K^+ Balance During and After Shortlasting Ischemia 1273

M. Persoon-Rothert, E. J. M. van der Valk-Kokshoorn, J. M. Egas-Kenniphaas, I. Mauve and A. van der Laarse Isoproterenol-induced Cytotoxicity in Neonatal Rat Heart Cell Cultures is Mediated by Free Radical Formation 1285

I. Murat, V. I. Veksler and R. Ventura-Clapier Effects on Halothane on Contractile Properties of Skinned Fibers from Cardiomyopathic Animals 1293

H. Tanaka and K. Shigenobu Effect of Ryanodine on Neonatal and Adult Rat Heart: Developmental Increase in Sarcoplasmic Reticulum Function 1305

K. Clarke, N. Sunn and R. J. Willis ^{31}P NMR Spectroscopy of Hypertrophied Rat Heart: Effect of Graded Global Ischemia 1315

M. Sakai, R. S. Danziger, J. M. Staddon, E. G. Lakatta and R. G. Hansford Decrease with Senescence in the Norepinephrine-induced Phosphorylation of Myofilament Proteins in Isolated Rat Cardiac Myocytes 1327

B. J. Ward and J. A. Firth Effect of Hypoxia on Endothelial Morphology and Interendothelial Junctions in the Isolated Perfused Rat Heart 1337

Rapid Communication

H. A. Katus, A. Remppis, S. Looser, K. Hallermeier, T. Scheffold and W. Kübler Enzyme Linked Immuno Assay of Cardiac Troponin T for the Detection of Acute Myocardial Infarction in Patients 1349

ISHR Calendar 1355

Erratum 1356